

REMARKS

Applicant respectfully requests reconsideration of this application as amended. Claims 1-53 are pending in the application. Claims 1, 14, 26, and 42 have been amended. Claim 54 has been added. No claims have been canceled.

The Examiner rejected claims 1-8, 10-19, and 21-25 under 35 U.S.C. § 102(b) as being anticipated by Lai et al in "*Measuring Link Bandwidths Using a Deterministic Model of Packet Delay*" published in August 2000. Applicant respectfully disagrees.

Claim 1 as amended is as follows:

1. A method of estimating QoS in an IP network, comprising:
generating at least one QoS estimate by
generating at least a first and second probing packet with an access router from at least one access point;
sending said first and second probing packets from said at least one access point over a fixed core network having a plurality of routers to a correspondent access router and then back to said at least one access router;
sending at least one collector packet to follow said first and second probing packets to gather at least one predetermined QoS parameter from said routers after said first and second probing packets leave said routers, the first and second probing packets being used to generate the at least one QoS parameter gathered by the at least one collector packet while the first and second probing packets travel from and back to said originating access router; and
processing said at least one QoS parameter with said at least one access router to determine a level of QoS experienced by said at least one access router;
and
making a handoff trigger decision based on the at least one QoS estimate.

As set forth in claim 1, the present invention as claimed includes generating at least one QoS estimate by the use of a pair of probing packets followed by at least one collector packet. The first and second probing packets are used to generate at least one QoS parameter that is gathered by the collector packet while the first and second probing packets travel from and back to an originating access router. Claim 1 also requires making a handoff trigger decision based on a QoS estimate.

Applicant respectfully submits that the present invention as claimed is not anticipated by Lee. Applicant respectfully submits that Lee does not teach or disclose making a handoff trigger decision based on a QoS estimate. In view of this, Applicant respectfully submits that the present invention as claimed is not anticipated by Lai.

Furthermore, Lai does not disclose the use of a pair of probing packets followed by at least one collector packet where the first and second probing packets are used to generate at least one QoS parameter that is gathered by the collector packet while the first and second probing packets travel from and back to an originating access router. In fact, the packet tailgating technique of Section 4 of Lai cited by the Examiner uses a pair of packets in which one packet (the tailgating packet) is sent after the other (the tailgated packet). The first tailgated packet is a large packet with a time-to-live (TTL) set to expire at a link followed by very small tailgating packet that will queue continuously behind the large packet until the large packet expires. Using this technique, the TTD forwarded tailgated packet will cause it to be dropped to the link so that the tailgating packet can then continue without queuing to the destination. By using this technique, the delay for the link may be calculated. Thus, for this technique to work, the first tailgated packet must be dropped to get the delay information. Therefore, it is clear that such a packet-to-packet technique only creates any data corresponding to the packet delay when the tailgated packet expires and is no longer traversing the network, i.e., is no longer traveling back to the originating access router or from a correspondent access router. In view of this, Applicant respectfully submits that the present invention as claimed in Claim 1 is not anticipated by Lai.

Applicant respectfully submits that the same limitations are found in claim 14. Therefore, for the same reason, this Applicant respectfully submits that the present invention as claimed in Claim 14 is not anticipated by Lai.

The Examiner rejected claims 9 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Lai et al, in view of Gallagher et al. (US 6,704,304). Applicant respectfully disagrees. As set forth above, Lai does not disclose the use of a pair of probing packets followed by at least one collector packet where the first and second probing packets are used to generate at least one QoS parameter that is gathered by the collector packet while the first and second probing packets travel from and back to an originating access router. Gallagher does not overcome this deficiency. More specifically, Gallagher discloses creating connections over packet and circuit-switched networks. Gallagher discloses monitoring the quality of voice transmission due to packet delay on a packet network such as the Internet, and if the delay becomes excessive, then the voice transmission is switched to the public switched telephone network (PSTN). In view of this, Applicant respectfully submits that the combination of Lai and Gallagher does not include all the limitations of Claim 9 or 20. Therefore, the present invention as claimed in Claim 9 and 20 cannot be rendered obvious by the combination of Lai and Gallagher.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicants submit that claims 9 and 20 as amended are now in condition for allowance and such action is earnestly solicited.

The Examiner rejected claims 47 and 48 under 35 U.S.C. § 103(a) as being unpatentable over Lai et al in view of Wu et al, *Intelligent Handoff for Mobile Wireless Internet*, further in view of Gallagher, et al (US 6,704,304). Applicant respectfully disagrees. As set forth above, Lai and Gallagher do not disclose the use of a pair of probing packets followed by at least one collector packet where the first and second probing packets are used to generate at least one QoS parameter that is gathered by the collector packet while the first and second probing packets travel from and back to an originating access router. Wu does not teach, mention, nor disclose this feature either. Wu discloses a handoff technique for use in mobile wireless internet

environments. The technique relies on having a layer 2 handoff notification to layer 3. In essence, the technique relies on layer 2 and layer 3 cooperating. However, Wu does not disclose the use of QoS for determining when to make a handoff trigger decision, nor is there any disclosure of using a pair of probing packets followed by at least one collector packet where the first and second probing packets are used to generate at least one QoS parameter that is gathered by the collector packet while the first and second probing packets travel from and back to an originating access router. In view of this, Applicant respectfully submits that the combination of Lai, Wu and Gallagher does not include all the limitations of Claim 47 and 48. Therefore, the present invention as claimed in Claim 47 and 48 cannot be rendered obvious by the combination of Lai, Wu and Gallagher.

Applicant also contends that one skilled in the art would not look to combine Wu with Lai and Gallagher. Wu does not teach, mention, nor disclose the use of QoS at all. Applicant respectfully submits that one skilled in the art would not look to art that does not involve QoS after handoffs for networks with IP based backbones, as set forth in the background of the invention, to arrive at the present invention.


Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicants submit that claims 47 and 48 as amended are now in condition for allowance and such action is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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Date: 2/23/06

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